

Claims

What is Claimed is:

1. A method of assembling a tandem pump apparatus, comprising:
selecting a first pump, wherein the first pump comprises a first housing, a first end cap
5 having hydraulic porting formed therein, a first cylinder block mounted on the first end cap and
located in the first housing, and a first pump shaft extending into the first housing to rotatably
drive the first cylinder block;
selecting a second pump, wherein the second pump comprises a second housing, a second
end cap having hydraulic porting formed therein, a second cylinder block mounted on the second
10 end cap and located in the second housing, and a second pump shaft extending into the second
housing to rotatably drive the second cylinder block;
selecting an interface plate having a first side and a second side;
mounting the first side of the interface plate to the first end cap and mounting the second
side of the interface plate to the second pump housing.
- 15 2. The method of claim 1, wherein the first pump shaft and the second pump shaft are
drivingly attached to each other by means of a coupler.
3. The method of claim 1, wherein the interface plate comprises a lumen into which at least
one pump shaft extends.
4. The method of claim 3, wherein the pump assembly further comprises a coupler attaching
20 the first pump shaft to the second pump shaft, wherein the coupler and the second pump shaft is
at least partially positioned within the lumen.

5. The method of claim 4, wherein the coupler extends the length of the lumen and into at least one of the first pump end cap or a bore formed in the housing of the second pump.
6. The method of claim 1, further comprising the step of connecting a port in the second end cap to a port in the first end cap.
- 5 7. The method of claim 6, wherein the port in the second end cap is a source of pressurized oil.
8. The method of claim 7, wherein the port in the second end cap also functions as a diagnostic port for charge pump pressure.
9. The method of claim 1, further comprising a charge pump attached to the second pump
10 end cap.
10. The method of claim 9, further comprising a conduit connecting charge oil from the second pump to the first pump.
11. The method of claim 10, wherein the conduit is connected to a port in the second pump end cap and a port in the first pump end cap.
- 15 12. The method of claim 9, further comprising a coupler drivingly attached to the first pump shaft and the second pump shaft.
13. The method of claim 12, wherein the coupler is located in at least one location selected from a group consisting of:
- a lumen formed in the interface plate;
- 20 a bore formed in the first pump end cap; and
- a bore formed in the second pump housing.

14. A method of assembling a tandem pump assembly wherein the pump assembly comprises a first pump having a first cylinder block mounted in a first housing, a first trunnion arm engaged to the first cylinder block and extending out of the first housing and a first set of system ports mounted in a first end cap; and a second pump having a second cylinder block in a second housing, a second trunnion arm engaged to the second cylinder block and extending out of the second housing and a second set of system ports mounted in a second end cap, the method comprising:

selecting a first orientation of the first trunnion arm with respect to the first set of system ports;

10 selecting a second orientation of the second trunnion arm with respect to the second set of system ports;

selecting an orientation of the first set of system ports with the second set of system ports and attaching the first end cap to a first side of an interface plate and attaching the second pump housing to a second side of the interface plate opposite to the first side to maintain the selected first and second orientations.

15. The method of claim 16, wherein the pump assembly further comprises a first pump shaft engaged to the first cylinder block and a second pump shaft engaged to the second cylinder block, the method further comprising the step of connecting the first pump shaft to the second pump shaft.

16. A tandem pump assembly having a first end, a second end and a plurality of sides, the assembly comprising:

a first pump comprising: a first housing; a first end cap engaged to the first housing; a first cylinder block rotatably mounted in the first housing on the first end cap; and a first pump shaft having a proximal end and a distal end, wherein the first pump shaft extends into the first housing to drivingly engage the first cylinder block and the proximal end is located outside the first housing at the first end of the pump assembly and the distal end extends into the first end cap;

a second pump comprising: a second housing; a second end cap engaged to the second housing; a second cylinder block rotatably mounted in the second housing on the second end cap; and a second pump shaft having a proximal end and a distal end, wherein the second pump shaft extends into the second housing to drive the second cylinder block, the proximal end is located outside of the second housing and between the first end and the second end of the pump assembly and the distal end extends into the second end cap;

an interface plate located between the first end and the second end of the pump assembly and attached at one side thereof to the first end cap and at the opposite side thereof to the second pump housing; and

a coupler located in the interface plate to connect the distal end of the first pump shaft with the proximal end of the second pump shaft.